| Work Orde <i>May-13-13 1:03</i> | | | B 10 15 20 | *10 | 152 | ?N* | | | | | | Page 1 | |
|--|---------------------|---|--------------------|-----------------------|-------------|--------------------------|------------|--------------|---------------|---------------|------------------|---------------------------------------|-------|
| Revision ID: | D2934 Saddle Spacer | D2934 | <u> </u> | Accept | * | 1 900 | 040 | 100 |)* s | Setup Start | i V | S1* S2* | |
| 1. T | 5/24/13 | Start Qty: 20.00 Req'd Qty: 20.00 | *20* *20* | | | Cust Item I Customer: | D: | | | | I Ņ | | · . |
| Approvals: | | nn: <u>ML</u> 5 | | | | | ate: | | F | Run Star | 171 | R1* R2* | |
| Sequence ID/ Work Center II |) | Operation Description | | Set Up/ Run Hours | | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp | |
| Draw Nbr D2934 | Rev Rev | vision Nbr | 4. | | | | | | | | , | | |
| *100 *100* Waterjet FLOW CNC Waterj | et | FLOW WATER JET Memo 1-Cut as per Deburr if ne | Dwg D2934 Dwg Rev: | 0.00 - B Prog Rev: | <u>B</u> 2. | | | | 20 | | 1 | Jm130 | 1G-Fü |
| *110 *110* QC Quality Control | | QC2- Inspect parts off m | achine FAI/FAIB | 0.00 | | | | | 20 | 0 | | Jm13-1 | 16·FC |
| 120 **120* • QC Quality Control | | QC8- Inspect parts - seco | and check | 0.00 | · 1. 22 | | | · | 30 | · | | · · · · · · · · · · · · · · · · · · · | |

| NCR: | Yes | / | No |
|------|-----|---|----|

DQA:

Date: _

| NCR: Ye | es / No | | | | WORK ORDER NON- | CONFO | ORN | ANCE / UPI | DATE | | | |
|----------------|------------|-------------|------------|------------|---------------------------------------|-------------|--------|-------------------|------------|--------------|---------------------------------------|--------------------|
| - : | | | | | | | | | <u> </u> | QA Closed: | Date | : |
| Work Ordei | r: | | | | DISPOSITION | | | | AGAINST DI | PARTMENT | /PROCESS | |
| | | | | | Rework | 7 | : | Skid-tube | Crosstube |] | Water Jet | Engineering |
| Part No | o | | | | Scrap |] [| ٨ | Machining | Small Fab | Pro | d. Eng. Coor. | Quality |
| | | | | | Use-as-is | _ Th | herm | oforming | Finishing | Rec/Sto | re/Packaging | Other |
| NCR N | o | | | | Work Order Update | ╛┃ | 1 | Large Fab | Composite | J | Supplier | J ∐ |
| Root | | | | Descri | ption of work order update | Initia | al | Act | tion | Sign & | | |
| Cause | Date | Step | Qty | • | or Non-conformance | Chief I | Eng | Descr | ription | Date | Verification | QC Inspector |
| oc/Data | | | | | • | | | | | | | |
| quip/Tooling | | | | | | | | | | | | |
| perator | _ | | | | | | 1 | | | | | |
| /laterial | | | | | | | 1 | | | | | |
| etup | | | | | | | | | | | | |
| Other | _ | | | | | | | | | | · | " |
| rocess | _ | | | | | 1 | | | | | | |
| upplier | _ | | | | | | 1 | | | | | |
| raining | _ | | | | | | | | | | | |
| Inapproved | | <u> </u> | | | | 1 | | | | 1 | | |
| | | | | | · · · · · · · · · · · · · · · · · · · | AULT C | ATEG | ORY | | | · · · · · · · · · · · · · · · · · · · | |
| Landin F | _ | | | | General | | . • | | | ٦, ,, | Г | ا ، ا |
| | Bending | | | - | Bend | Gra | | | | Ovalized | - | Pressure/Forced |
| <u> -</u> | Centre No | ot Conce | ntric to (|)/S - - | BOM/Route | \vdash | rdwar | | _ | Over/Under | — | Temperature/Cure |
| | Cracks | | | | Broken/Damaged | — | - | on Incomplete | | Part Incorre | - | Weld |
| | Crushed/ | Crimped | | - | Burrs | - | | ions Incomplete/l | Unclear | Part Lost/Mi | ssing | Wrong Stock Pulled |
| | Cuffs | | | | Contamination | | | nance | <u> </u> | Part Moved | | |
| | Heat Trea | | | | Countersink | \vdash | slabel | | ļ | Positioned V | _ | ¬ |
| - | Inspectio | - | Tube | <u> </u> | Cut Too Short | | sread | | L | Power Loss/ | Surge | Other |
| | Ripples ir | | _ | | Drill Holes | ⊢ | set | | | | | |
| 1 | Torque W | | | ` <u> </u> | Drawing | \vdash | | Calibration | | | | : |
| | Turning S | - | | | Finish | Out | t of S | equence | | | | |
| | Wave/Tw | vist in Tul | oe e | | Folio | Out | tside | Dimensions | | | | |

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|--|-------------|------------------------|-------------------|----------------------|------------------|--------|--------------|-------------|------------|-------------|------------------|----------------|
| Work Ord . <i>May-13-13 1:</i> | | 01520 | | *101520* | | | | | | | | Page 2 |
| Item ID: Revision ID: | D2934 | | | Accept | *N900 | 040 | 100 |)* | Setup | | ı | S1* |
| Item Name: | Saddle Spac | er | | | | | | | | Stop | *N | S2* |
| Start Date: | 5/24/13 | Start Qty: 20.00 | *20* | | Cust Item | ID: | | | | | | |
| Required Dat | e: 5/24/13 | Req'd Qty: 20.00 | *20* | | Customer: | | | | | | | |
| Reference: | • | | 7 () | | | | | | | | | |
| Approvals: | Process P | lan: | Date: | Tooling: | · D | ate: | _ | | Run | Start | 1/7 | R1* |
| ें हैं | QC: | | Date: | SPC (Y/N): | D | ate: | | | | Stop | *N | R2* |
| Sequence ID/ Work Center | | Operation Description | | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Acce Qty | pt Ro | eject ty | Reject Number | Insp. Stamp |
| 130 | | Chemical Conversion Co | at per QSI005 4.1 | 0.00 | | | | 'n | ^ | 0/ | 7. | 7 7- |
| *130* HandFinish | | Мето | | 0.00 | | | | 7(| <u>)</u> _ | NE | 7/3 | t23 |

QC3- Inspect Part Finish

0.00

140

Hand Finishing

Quality Control

Memo

0.00

Identify as per dwg & Stock Location: 57022

Packaging

Memo

0.00

20x 13-7-27.

Packaging

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| | | | | | | | | | | | DQA: | Date | e: _ | |
|---------------|------|----------|-----------|----------|----------|-----------------------------|----------|----------|-------------------|------------|--------------|---------------|-------------|--------------------|
| NCR: | Yes | / No | | | | WORK ORDER NON- | COI | NFORM | MANCE / UP | DATE | QA Closed: | Date | a | |
| | | | • | | | DISPOSITION | | | | ACAINST DE | | | | |
| Work Orde | er: | | | | | DISPOSITION | | | | AGAINST DE | PAKTIVIENT | PROCESS | | |
| | | | | | | Rework | 1 | | Skid-tube | Crosstube | | Water Jet | | Engineering |
| Part I | ۷o. | | | | | Scrap |] | 1 | Machining | Small Fab | Pro | d. Eng. Coor. | | Quality |
| | | | | | | Use-as-is | | Thern | noforming | Finishing | Rec/Sto | re/Packaging | | Other |
| NCR I | ۷o. | | | | | Work Order Update | j | | Large Fab | Composite | j | Supplier | | |
| Root | | | | | Descr | iption of work order update | Т | Initial | Act | ion | Sign & | | 一 | |
| Cause | l | Date | Step | Qty | 1 | or Non-conformance | 1 | nief Eng | | ription | Date | Verification | , | QC Inspector |
| Doc/Data | П | | 1 | ~-, | | | + | | | | | | 十 | |
| Equip/Tooling | | | | | | | 1 | | | | | | | |
| Operator | | | | | | | | | | | | | | |
| Material | | | | | | | | | | | | | | |
| Setup | | | | | | | | | | | ļ | | | |
| Other | | | | | | | | | | | | | | |
| Process | | | | | | | | | | | | | | |
| Supplier | | | | | | | 1 | | | | | | | |
| Training | | | | | | | | | | | | | - } | |
| Unapproved | | | <u></u> | | | | L | | | | | | | |
| | | | | | | F | AU | LT CATE | GORY | | | | | |
| Landi | ng (| Sear | | | | General | _ | , | | _ | 7 | _ | _ | |
| | | Bending | | | L | Bend | \perp | Grain | | | Ovalized | | | Pressure/Forced |
| , | | Centre N | ot Concer | ntric to | o/s | BOM/Route | \perp | Hardwa | | <u> </u> | Over/Under | F | _ | Temperature/Cure |
| | | Cracks | | | <u> </u> | Broken/Damaged | \vdash | - | ion Incomplete | <u> </u> | Part Incorre | <u> </u> | _ | Weld |
| | 1 | Crushed/ | Crimped | | l | Burrs | 1 | Instruct | ions Incomplete/L | Jnclear | Part Lost/M | issing | - IV | Wrong Stock Pulled |

Maintenance

Out of Calibration

Out of Sequence

Outside Dimensions

Mislabeled

Misread

Offset

Contamination

Countersink

Cut Too Short Drill Holes

Drawing

Finish

Folio

Part Moved

Positioned Wrong

Power Loss/Surge

Other

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Cuffs

Heat Treat

Inspection Strip in Tube

Torque Waves in Extrusion

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

| Work Ord | | 01520 | | | Page 3 | | | | | | |
|---|-----------------------|--|--------------------|----------------------|--------------------------|------------|--------------|---------------|----------------|------------------|----------------|
| Item ID: Revision ID: Item Name: | D2934 Saddle Space | er | | Accept | *N900 | 040 | 100 |)* | Setup Sta | i Ai | S1* S2* |
| Start Date: Required Dat Reference: | 5/24/13 e: 5/24/13 | Start Qty: 20.00 Req'd Qty: 20.00 | *20* *20* | | Cust Item I Customer: | D: | | | | | • |
| Approvals: | Process P | | Date: | Tooling: SPC (Y/N): | | ate: | | 1 | Run Sta Sto | " [\] | R1* R2* |
| Sequence ID/ Work Center | ID | Operation Description QC21- Final Inspection - | Work Order Release | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
| *160* | | Мето | | 0.00 | | | | M | رح ١٠ | 3-07-7 | <u></u> |

nut 13-7-24

| | | | | | | | | | | | | DQA: | D | ate: | |
|---------------|--------|----------|----------|----------|--------|--------------------------------|-----|----------|---------------------|------------------------|----|----------------|---------------------------|---------|---------------------|
| NCR: Y | 'es / | No | | | | WORK ORDER NON-C | 100 | NFORM | MANCE / UP | DATE | | QA Closed: | | ate: | |
| | | | | | | DISPOSITION | | | | ACAINST | | | | ite. | |
| Work Orde | er: | | | | | DISPOSITION | | | | AGAINST D | EF | 'AK LIVIEN I / | PROCESS | | |
| Part N | ło | | | | | Rework Scrap | | r | Skid-tube Nachining | Crosstube Small Fab |] | | Water Jet d. Eng. Coor | Ė | Engineering Quality |
| NCR N | lo | | | | | Use-as-is Work Order Update | | | oforming Large Fab | Finishing Composite | _ | Rec/Stor | e/Packaging Suppliei | | Other |
| Root | П | | | | Descri | ption of work order update | | Initial | Ac | tion | Т | Sign & | | | |
| Cause | | Date | Step | Qty | c | or Non-conformance | Ch | nief Eng | Desc | ription | | Date | Verification | วท | QC Inspector |
| Doc/Data | | | | | | , | | | | | T | | | | |
| Equip/Tooling | | | | | | | | | | | ı | | : | | |
| Operator | | Ì | | | | | | | | | | | | | |
| Material | | | | | | | | | | | Ì | | | | |
| Setup | | | | | | | | | | | | | | | |
| Other | | | | | | | | | | | 1 | | | | |
| Process | | | | | | | | | | | | | | | |
| Supplier | | | | | | | | | | | ١ | | | | |
| Training | | | | | | | | | | | ١ | : | | | |
| Unapproved | | | | | | | | | | | | | | | |
| | | | | | | F | AUL | T CATE | GORY | | | | | | |
| Landi | ng Gea | ar | | | | General | | , | | | _ | | | _ | • |
| | Ве | ending | | | | Bend | L | Grain | | | | Ovalized | | \perp | Pressure/Forced |
| | Ce | entre No | t Concer | ntric to | o/s | BOM/Route | L | Hardwa | re | L | | Over/Under | tolerance | | Temperature/Cure |
| | Cr | acks | | | | Broken/Damaged | | Inspecti | on Incomplete | | | Part Incorred | :t | | Weld |
| | Cr | ushed/0 | Crimped | | | Burrs | | Instruct | ions Incomplete/ | Unclear | ╛ | Part Lost/Mi | ssing | | Wrong Stock Pulled |
| | Cı | ıffs | | | | Contamination | | Mainte | nance | | | Part Moved | | | |
| | Шне | eat Trea | t | | | Countersink | | Mislabe | led | | | Positioned W | Vrong | _ | |
| | In | spection | Strip in | Tube | | Cut Too Short | | Misread | 1 | | ٦ | Power Loss/ | Surge | | Other |

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

May-13-13 1:03:42 PM

Work Order ID:

101520

Parent Item:

D2934

Parent Item Name:

Saddle Spacer

Start Date: 5/24/13

Required Date: 5/24/13

Start Qty: 20.00

Required Qty: 20.00

Comments:

IPP A00.06.06New IssueEC

IPP Rev:B Now 6061-T6 06-06-23 JLM

| Component Item ID/ Item Name | Replacement Item ID | Mfg/ Purch | Bin Item | Primary Location | Last Location | Route Seq ID | Unit of Measure | Qty on Hand | Qty per Kit | Total Qty | Qty Issued | Date Issued | Status |
|------------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|-----------------------------|---------------|----------------|---------|
| M6061T6S.080 6061-T6 .080 Sheet | | Purchased | No | | | 100 | sf | 111.0973 | 0.0318 | 0. 669474 \.O | - | | [m1307. |
| | | | | Location | | Loc Qty | <u>Lo</u> | c Code | | | | | , |
| | | | | MAT021 | | 111.097264 | | | | | | | |
| | | | | 117 | 7285 | 0.497264 | | | | | | | |
| | | | | 124 | 4786 | 110.6 | | | | | | | |
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| | | | | | | | | | | DQA: | Date: | |
|------------------|---------|------------|-----------|----------|--------------------------------|----------|----------|---------------------|---------------------|--------------|--------------------------|---------------------|
| NCR: Y | es / N | D | | | WORK ORDER NON-C | O | VFOR | MANCE / UP | | QA Closed: | Date: | |
| Mark Orda | | , | | | DISPOSITION | | | | AGAINST DE | | " | |
| Work Orde Part N | | | | | Rework Scrap | | | Skid-tube Machining | Crosstube Small Fab | 4 | Water Jet | Engineering Quality |
| NCR N | lo | · | | | Use-as-is Work Order Update | | Thern | noforming Large Fab | Finishing Composite | Rec/Stoi | re/Packaging Supplier | Other |
| Root | | | | Descri | ption of work order update | 1 | Initial | Ac | tion | Sign & | | |
| Cause | Dat | e Step | Qty | ļ | or Non-conformance | Ch | ief Eng | Desc | ription | Date | Verification | QC Inspector |
| Doc/Data | | | | | | | | | | | | |
| Equip/Tooling | | | | 1 | | | | | | | | |
| Operator | | | | | | | | | | | i | |
| Material | | - | | | | | | | | | | |
| Setup | | | | | | | = | | | | | |
| Other | | | | | | | | | | | | |
| Process | | | | | | | | | | | : | |
| Supplier | | | | | | | | | | | | |
| Training | | | | | | | | | | | | |
| Unapproved | | | | <u> </u> | | <u> </u> | | | | l | | |
| | | | | | F | AUL | T CATE | GORY | | | | |
| Landir | ng Gear | | | , | General | | , | | | • | _ | - |
| | Bendi | ng | | | Bend | | Grain | | | Ovalized | | Pressure/Forced |
| | Centr | Not Conce | entric to | O/S | BOM/Route | | Hardwa | are | | Over/Under | tolerance | Temperature/Cure |
| | Crack | | | | Broken/Damaged | | Inspect | ion Incomplete | | Part Incorre | ct <u> </u> | Weld |
| | Crush | ed/Crimped | ł | | Burrs | | Instruct | tions Incomplete/ | Unclear | Part Lost/Mi | ssing | Wrong Stock Pulled |
| | Cuffs | | | | Contamination | | Mainte | enance | | Part Moved | | |
| | Heat | reat | | | Countersink | 1 | Mislabe | eled | | Positioned V | Vrong | |

Out of Calibration

Out of Sequence

Outside Dimensions

Misread

Offset

Positioned Wrong

Power Loss/Surge

Other

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Inspection Strip in Tube

Torque Waves in Extrusion

Cut Too Short

Drill Holes

Drawing

Finish

Folio

| DART AEROSPACE LTD | Work Order: | 101520 |
|------------------------------|--------------|-------------|
| | | 7.7. |
| Description: Saddle Spacer | Part Number: | D2934 |
| Inspection Dwg: D2934 Rev: B | | Page 1 of 1 |

FIRST ARTICLE INSPECTION CHECKLIST

X First Article Prototype

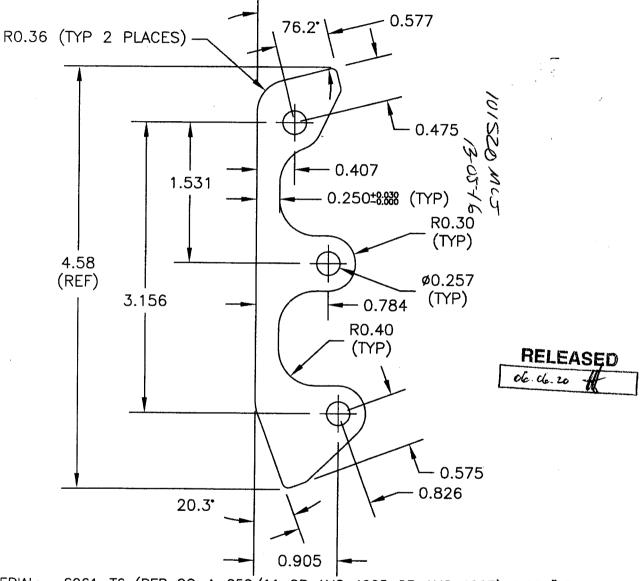
| Drawing | | Actual | | | | |
|-----------|---------------|-----------|--------|---------------------------------------|-------------------------|----------|
| Dimension | Tolerance | Dimension | Accept | Reject | Method of Inspection | Comments |
| 0.475 | +/-0.010 | 0.476" | _ | | V | Jkmoi |
| 0.407 | +/-0.010 | 0.407" | ~ | | V | |
| 0.250 | +0.030/-0.000 | 0.266 | J | | V | |
| R0.30 | +/-0.030 | 0.30" | - | | RG | |
| Ø0.257 | +0.005/-0.000 | 0.258" | _ | | V | |
| 0.784 | +/-0.010 | 0.780° |) | | V | |
| 0.826 | +/-0.010 | 0.823" | L | | V | |
| R0.36 | +/-0.030 | 0.36 | - | | RG | • |
| 0.080 | +/-0.010 | 0.079° | • | | V | - |
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| Measured by: Jm | Audited by: 27 | Prototype Approval: | N/A |
|-----------------|-----------------|---------------------|-----|
| Date: 13-07-21 | Date: 13. 7. 22 | Date: | N/A |

| Rev | Date | Change | Revised by | Approved |
|-----|----------|-----------------------|------------|----------|
| Α | 04.08.12 | New Issue | KJ/JLM | |
| В | 06.06.23 | Dwg Rev. changed | KJ/JLM | <u> </u> |
| С | 08.08.27 | 0.080 dimension added | KJ/DD X | N |



DESIGN DRAWN BY DART AEROSPACE USA, INC. CHECKED APPROVED DRAWING NO. REV. B PH D2934 SHEET 1 OF DATE TITLE SCALE 06.05.29 SADDLE SPACER 1:1 **NEW ISSUE** Α 99.11.02 В ADD 6061-T6 MATERIAL 06.05.29



NOTES: 1) MATERIAL:

6061-T6 (PER QQ-A-250/11 OR AMS 4025 OR AMS 4027) 0.080" THICK

(REF DART SPEC M6061T6S.080)

OR

5052-H32/H34 (PER QQ-A-250/8 OR AMS 4016) 0.080" THICK

(REF DART SPEC M5052H32S.080)

2) FINISH: ACID ETCH AND ALODINE PER DART QSI 005 4.1

3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

4) BREAK ALL SHARP EDGES 0.010 TO 0.020

5) ALL DIMENSIONS ARE IN INCHES

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